

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/657,749DATE: 07/26/96  
TIME: 11:14:39

INPUT SET: S11781.raw

This Raw Listing contains the General  
Information Section and those Sequences  
containing ERRORS.

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SEQUENCE LISTING Does Not Comply  
Corrected Diskette Needed

(1) General Information:

(i) APPLICANTS: Metz, James G.  
Lardizabal, Kathryn D.  
Lassner, Michael

(ii) TITLE OF INVENTION: Nucleic Acid Sequences Encoding  
a Plant Cytoplasmic Protein Involved in  
Fatty Acyl-CoA Metabolism

(iii) NUMBER OF SEQUENCES: 39

(iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: Calgene, Inc.

(B) STREET: 1920 Fifth Street

(C) CITY: Davis

(D) STATE: CA

(E) COUNTRY: USA

(F) ZIP: 95616

(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Diskette, 3.50 inch, 1.0 MB

(B) COMPUTER: Apple Macintosh

(C) OPERATING SYSTEM: Macintosh 7.0

(D) SOFTWARE: Microsoft Word 5.1a

(vi) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: PCT/US94/13686

(B) FILING DATE: 30-NOV-94

(C) CLASSIFICATION:

See  
marked  
up notes  
throughout  
→

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/657,749DATE: 07/26/96  
TIME: 11:14:42

INPUT SET: S11781.raw

46  
47 (vii) CURRENT APPLICATION DATA:  
48  
49 (A) APPLICATION NUMBER:  
50  
51 (B) FILING DATE:  
52  
53 (C) CLASSIFICATION:  
54  
55 (vii) PRIOR APPLICATION DATA:  
56  
57 (A) APPLICATION NUMBER: 08/265,047  
58  
59 (B) FILING DATE: 23-JUN-94  
60  
61 (C) CLASSIFICATION:  
62  
63 (vii) PRIOR APPLICATION DATA:  
64  
65 (A) APPLICATION NUMBER: 08/160,602  
66  
67 (B) FILING DATE: 30-NOV-93  
68  
69 (C) CLASSIFICATION:  
70  
71 (vii) PRIOR APPLICATION DATA:  
72  
73 (A) APPLICATION NUMBER: 08/066,299  
74  
75 (B) FILING DATE: 20-MAY-93  
76  
77 (vii) PRIOR APPLICATION DATA:  
78  
79 (A) APPLICATION NUMBER: PCT/US92/09863  
80  
81 (B) FILING DATE: 13-NOV-92  
82  
83 (vii) PRIOR APPLICATION DATA:  
84  
85 (A) APPLICATION NUMBER: 07/933,411  
86  
87 (B) FILING DATE: 21-AUG-92  
88  
89 (vii) PRIOR APPLICATION DATA:  
90  
91 (A) APPLICATION NUMBER: 07/796,256  
92  
93 (B) FILING DATE: 20-NOV-91  
94  
95 (viii) ATTORNEY/AGENT INFORMATION:  
96  
97 (A) NAME: Donna E. Scherer  
98

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/657,749DATE: 07/26/96  
TIME: 11:14:46

INPUT SET: S11781.raw

99 (B) REGISTRATION NUMBER: 34,719  
100  
101 (A) NAME: Carl J. Schwedler  
102  
103 (B) REGISTRATION NUMBER: 36,924  
104  
105 (C) REFERENCE/DOCKET NUMBER: CGNE 101-2 US  
106  
107 (ix) TELECOMMUNICATION INFORMATION:  
108  
109 (A) TELEPHONE: (916) 753-6313  
110  
111 (B) TELEFAX: (916) 753-1510  
112  
113  
114  
--> 115 (2) INFORMATION FOR SEQ ID NO: 1:  
116  
117 (i) SEQUENCE CHARACTERISTICS:  
118  
119 (A) LENGTH: 1786 base pairs  
120  
121 (B) TYPE: nucleic acid  
122  
123 (C) STRANDEDNESS: single  
124  
125 (D) TOPOLOGY: linear  
126  
127 (ii) MOLECULE TYPE: cDNA to mRNA  
128  
--> 129 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:  
130  
131 AAATCCTCCA CTCATACACT CCACTTCTCT CTCTCTCTCT CTCTCTCTGA AACAATTTGA 60  
132  
133  
134 GTAGCAAAC TAAAAGAAA ATG GAG GAA ATG GGA AGC ATT TTA GAG TTT CTT 112  
135 Met Glu Glu Met Gly Ser Ile Leu Glu Phe Leu  
136 1 5 10  
137  
138  
139 GAT AAC AAA GCC ATT TTG GTC ACT GGT GCT ACT GGC TCC TTA GCA AAA 160  
140 Asp Asn Lys Ala Ile Leu Val Thr Gly Ala Thr Gly Ser Leu Ala Lys  
141 15 20 25  
142  
143  
144 ATT TTT GTG GAG AAG GTA CTG AGG AGT CAA CCG AAT GTG AAG AAA CTC 208  
145 Ile Phe Val Glu Lys Val Leu Arg Ser Gln Pro Asn Val Lys Lys Leu  
146 30 35 40  
147  
148  
149 TAT CTT CTT TTG AGA GCA ACC GAT GAC GAG ACA GCT GCT CTA CGC TTG 256  
150 Tyr Leu Leu Leu Arg Ala Thr Asp Asp Glu Thr Ala Ala Leu Arg Leu  
151 45 50 55

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/657,749

DATE: 07/26/96  
TIME: 11:14:49

INPUT SET: S11781.raw

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152
153
154   CAA AAT GAG GTT TTT GGA AAA GAG TTG TTC AAA GTT CTG AAA CAA AAT   304
155   Gln Asn Glu Val Phe Gly Lys Glu Leu Phe Lys Val Leu Lys Gln Asn
156   60                               65                               70                               75
157
158
159   TTA GGT GCA AAT TTC TAT TCC TTT GTA TCA GAA AAA GTG ACT GTA GTA   352
160   Leu Gly Ala Asn Phe Tyr Ser Phe Val Ser Glu Lys Val Thr Val Val
161                               80                               85                               90
162   CCC GGT GAT ATT ACT GGT GAA GAC TTG TGT CTC AAA GAC GTC AAT TTG   400
163   Pro Gly Asp Ile Thr Gly Glu Asp Leu Cys Leu Lys Asp Val Asn Leu
164                               95                               100                               105
165
166
167   AAG GAA GAA ATG TGG AGG GAA ATC GAT GTT GTT GTC AAT CTA GCT GCT   448
168   Lys Glu Glu Met Trp Arg Glu Ile Asp Val Val Val Asn Leu Ala Ala
169                               110                               115                               120
170
171
172   ACA ATC AAC TTC ATT GAA AGG TAC GAC GTG TCT CTG CTT ATC AAC ACA   496
173   Thr Ile Asn Phe Ile Glu Arg Tyr Asp Val Ser Leu Leu Ile Asn Thr
174   125                               130                               135
175
176
177   TAT GGA GCC AAG TAT GTT TTG GAC TTC GCG AAG AAG TGC AAC AAA TTA   544
178   Tyr Gly Ala Lys Tyr Val Leu Asp Phe Ala Lys Lys Cys Asn Lys Leu
179   140                               145                               150                               155
180
181
182   AAG ATA TTT GTT CAT GTA TCT ACT GCT TAT GTA TCT GGA GAG AAA AAT   592
183   Lys Ile Phe Val His Val Ser Thr Ala Tyr Val Ser Gly Glu Lys Asn
184                               160                               165                               170
185
186
187   GGG TTA ATA CTG GAG AAG CCT TAT TAT ATG GGC GAG TCA CTT AAT GGA   640
188   Gly Leu Ile Leu Glu Lys Pro Tyr Tyr Met Gly Glu Ser Leu Asn Gly
189                               175                               180                               185
190
191
192   AGA TTA GGT CTG GAC ATT AAT GTA GAG AAG AAA CTT GTG GAG GCA AAA   688
193   Arg Leu Gly Leu Asp Ile Asn Val Glu Lys Lys Leu Val Glu Ala Lys
194   190                               195                               200
195
196
197   ATC AAT GAA CTT CAA GCA GCG GGG GCA ACG GAA AAG TCC ATT AAA TCG   736
198   Ile Asn Glu Leu Gln Ala Ala Gly Ala Thr Glu Lys Ser Ile Lys Ser
199   205                               210                               215
200
201
202   ACA ATG AAG GAC ATG GGC ATC GAG AGG GCA AGA CAC TGG GGA TGG CCA   784
203   Thr Met Lys Asp Met Gly Ile Glu Arg Ala Arg His Trp Gly Trp Pro
204   220                               225                               230                               235

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# RAW SEQUENCE LISTING PATENT APPLICATION US/08/657,749

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205
206
207   AAT GTG TAT GTA TTC ACC AAG GCA TTA GGG GAG ATG CTT TTG ATG CAA      832
208   Asn Val Tyr Val Phe Thr Lys Ala Leu Gly Glu Met Leu Leu Met Gln
209               240               245               250
210
211
212   TAC AAA GGG GAC ATT CCG CTT ACT ATT ATT CGT CCC ACC ATC ATC ACC      880
213   Tyr Lys Gly Asp Ile Pro Leu Thr Ile Ile Arg Pro Thr Ile Ile Thr
214               255               260               265
215
216
217   AGC ACT TTT AAA GAG CCC TTT CCT GGT TGG GTT GAA GGT GTC AGG ACC      928
218   Ser Thr Phe Lys Glu Pro Phe Pro Gly Trp Val Glu Gly Val Arg Thr
219               270               275               280
220
221
222   ATC GAT AAT GTA CCT GTA TAT TAT GGT AAA GGG AGA TTG AGG TGT ATG      976
223   Ile Asp Asn Val Pro Val Tyr Tyr Gly Lys Gly Arg Leu Arg Cys Met
224               285               290               295
225
226
227
228   CTT TGC GGA CCC AGC ACA ATA ATT GAC CTG ATA CCG GCA GAT ATG GTC     1024
229   Leu Cys Gly Pro Ser Thr Ile Ile Asp Leu Ile Pro Ala Asp Met Val
230   300               305               310               315
231
232
233   GTG AAT GCA ACG ATA GTA GCC ATG GTG GCG CAC GCA AAC CAA AGA TAC     1072
234   Val Asn Ala Thr Ile Val Ala Met Val Ala His Ala Asn Gln Arg Tyr
235               320               325               330
236
237
238   GTA GAG CCG GTG ACA TAC CAT GTG GGA TCT TCA GCG GCG AAT CCA ATG     1120
239   Val Glu Pro Val Thr Tyr His Val Gly Ser Ser Ala Ala Asn Pro Met
240               335               340               345
241
242
243   AAA CTG AGT GCA TTA CCA GAG ATG GCA CAC CGT TAC TTC ACC AAG AAT     1168
244   Lys Leu Ser Ala Leu Pro Glu Met Ala His Arg Tyr Phe Thr Lys Asn
245               350               355               360
246
247
248   CCA TGG ATC AAC CCG GAT CGC AAC CCA GTA CAT GTG GGT CGG GCT ATG     1216
249   Pro Trp Ile Asn Pro Asp Arg Asn Pro Val His Val Gly Arg Ala Met
250               365               370               375
251
252
253   GTC TTC TCC TCC TTC TCC ACC TTC CAC CTT TAT CTC ACC CTT AAT TTC     1264
254   Val Phe Ser Ser Phe Ser Thr Phe His Leu Tyr Leu Thr Leu Asn Phe
255   380               385               390               395
256
257

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RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/657,749DATE: 07/26/96  
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INPUT SET: S11781.raw

277  
278 ATA GTT GAA GCT GAT ATG TTT TAC TTT GAT CCC AGG GCA ATT AAC TGG 1504  
279 Ile Val Glu Ala Asp Met Phe Tyr Phe Asp Pro Arg Ala Ile Asn Trp  
280 460 465 470 475  
281  
282  
283  
284 GAA GAT TAC TTC TTG AAA ACT CAT TTC CCA GGN GTC GTA GAG CAC GTT 1552  
285 Glu Asp Tyr Phe Leu Lys Thr His Phe Pro Gly Val Val Glu His Val  
286 480 485 490  
287  
288  
289 CTT AAC TAAAAGTTAC GGTACGAAAA TGAGAAGATT GGAATGCATG CACCGAAAGN 1608  
290 Leu Asn  
291  
292  
293 NCAACATAAA AGACGTGGTT AAAGTCATGG TCAAAAAAGA AATAAAATGC AGTTAGGTTT 1668  
294  
295  
296 GTGTTGCAGT TTTGATTCCT TGTATTGTTA CTTGTACTTT TGATCTTTTT CTTTTTTAAT 1728  
297  
298  
299 GAAATTTCTC TCTTTGTTTT GTGAAAAAAA AAAAAAAA GAGCTCCTGC AGAAGCTT 1786  
300  
301

---

986 (2) INFORMATION FOR SEQ ID NO: 15:

987

988 (i) SEQUENCE CHARACTERISTICS:

989

990 (A) LENGTH:17 base pairs

991

992 (B) TYPE: nucleic acid

993

994 (C) STRANDEDNESS:single

995

996 (D) TOPOLOGY: linear

997

998 (ii) MOLECULE TYPE: other

999

--&gt; 1000 (A) synthetic oligonucleotide

1001

1002 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:15 :

1003

1004 AAYATHACNA CNYTNGG

17

1005

1006

1007

1008

---

1009 (2) INFORMATION FOR SEQ ID NO: 16:

1010

1011 (i) SEQUENCE CHARACTERISTICS:

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/657,749

 DATE: 07/26/96  
 TIME: 11:15:13

INPUT SET: S11781.raw

1012  
 1013 (A) LENGTH: 17 base pairs  
 1014  
 1015 (B) TYPE: nucleic acid  
 1016  
 1017 (C) STRANDEDNESS: single  
 1018  
 1019 (D) TOPOLOGY: linear  
 1020  
 1021 (ii) MOLECULE TYPE: other  
 1022  
 --> 1023 (A) synthetic oligonucleotide  
 1024  
 1025 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:16 :  
 1026  
 1027  
 1028 SWRTTRCAYT TRAANCC  
 1029  
 1030  
 1031

*Description:*

17

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2114 (2) INFORMATION FOR SEQ ID NO: 25:  
 2115  
 2116 (i) SEQUENCE CHARACTERISTICS:  
 2117  
 2118 (A) LENGTH: 1664 base pairs  
 2119  
 2120 (B) TYPE: nucleic acid  
 2121  
 2122 (C) STRANDEDNESS: single  
 2123  
 2124 (D) TOPOLOGY: linear  
 2125  
 2126 (ii) MOLECULE TYPE: cDNA to mRNA  
 2127  
 2128  
 2129  
 2130  
 2131 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:  
 2132  
 2133  
 2134 CA ATG ACG TCT GTG AAC GTA AAA CTC CTT TAC CAT TAC GTC ATA ACC 47  
 2135 Met Thr Ser Val Asn Val Lys Leu Leu Tyr His Tyr Val Ile Thr  
 2136 1 5 10 15  
 2137  
 2138  
 2139 AAC TTT TTC AAC CTC TGT TTC TTC CCA CTG ACG GGG ATC CTC GCC GGA 95  
 2140 Asn Phe Phe Asn Leu Cys Phe Phe Pro Leu Thr Gly Ile Leu Ala Gly  
 2141 20 25 30  
 2142  
 2143  
 2144 AAA GGC TCT CGT CTT ACC ACA AAC GAT CTC CAC CAC TTC TAT TCA TAT 143  
 2145 Lys Gly Ser Arg Leu Thr Thr Asn Asp Leu His His Phe Tyr Ser Tyr

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/657,749

DATE: 07/26/96  
TIME: 11:15:17

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	35	40	45	
2146				
2147				
2148				
2149	CTC CAA CAC AAN CTT ATA ACC TTA ACC CTA CTC TTT GGC TTC ACC GTT			191
2150	Leu Gln His Xxx Leu Ile Thr Leu Thr Leu Leu Phe Gly Phe Thr Val			
2151	50	55	60	
2152				
2153				
2154	TTT GGT TCG GTT CTC TAC TTC GTA ANC CGA CCC AAA CCG GTT TAC CTC			239
2155	Phe Gly Ser Val Leu Tyr Phe Val Xxx Arg Pro Lys Pro Val Tyr Leu			
2156	65	70	75	
2157				
2158				
2159	GTT GAC TAC TCC TGC TAC CTT CCA CCA CAA CAT CTT AGC GCT GGT ATC			287
2160	Val Asp Tyr Ser Cys Tyr Leu Pro Pro Gln His Leu Ser Ala Gly Ile			
2161	80	85	90	95
2162				
2163				
2164	TCT AAG ACC ATG GAA ATC TTT TAT CAA ATA AGA AAA TCT GAT CCT TTA			335
2165	Ser Lys Thr Met Glu Ile Phe Tyr Gln Ile Arg Lys Ser Asp Pro Leu			
2166	100	105	110	
2167				
2168				
2169	CGA AAC GTG GCA TTA GAT GAT TCG TCT TCT CTT GAT TTC TTG AGA AAG			383
2170	Arg Asn Val Ala Leu Asp Asp Ser Ser Ser Leu Asp Phe Leu Arg Lys			
2171	115	120	125	
2172				
2173				
2174	ATT CAA GAG CGT TCA GGT CTA GGC GAT GAA ACC TAC GGC CCC GAG GGA			431
2175	Ile Gln Glu Arg Ser Gly Leu Gly Asp Glu Thr Tyr Gly Pro Glu Gly			
2176	130	135	140	
2177				
2178				
2179	CTG TTT GAG ATT CCT CCG AGG AAG AAT TTA GCG TCG GCG CGT GAA GAG			479
2180	Leu Phe Glu Ile Pro Pro Arg Lys Asn Leu Ala Ser Ala Arg Glu Glu			
2181	145	150	155	
2182				
2183				
2184				
2185				
2186	ACG GAG CAA GTA ATC AAC GGT GCG CTA AAA AAT CTA TTC GAG AAC AAC			527
2187	Thr Glu Gln Val Ile Asn Gly Ala Leu Lys Asn Leu Phe Glu Asn Asn			
2188	160	165	170	175
2189				
2190				
2191	AAA GTT AAC CCT AAA GAG ATT GGT ATA CTT GTG GTG AAC TCA AGC ATG			575
2192	Lys Val Asn Pro Lys Glu Ile Gly Ile Leu Val Val Asn Ser Ser Met			
2193	180	185	190	
2194				
2195				
2196	TTT AAT CCG ACT CCT TCG TTA TCC GCG ATG GTA GTT AAT ACT TCC AAG			623
2197	Phe Asn Pro Thr Pro Ser Leu Ser Ala Met Val Val Asn Thr Ser Lys			
2198	195	200	205	



# RAW SEQUENCE LISTING PATENT APPLICATION *US/08/657,749*

DATE: 07/26/96  
TIME: 11:15:20

INPUT SET: *S11781.raw*

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2199
2200
2201   CTC CGA AGC AAC ATC AAA AGC TTT AAT CTT GGA GGA ATG GGT TGC AGT   671
2202   Leu Arg Ser Asn Ile Lys Ser Phe Asn Leu Gly Gly Met Gly Cys Ser
2203           210                      215                      220
2204
2205
2206   GCT GGT GTT ATC GCC ATT GAT CTA GCT AAA GAC TTG TTG CAT GTT CAT   719
2207   Ala Gly Val Ile Ala Ile Asp Leu Ala Lys Asp Leu Leu His Val His
2208           225                      230                      235
2209
2210
2211   AAA AAC ACA TAT GCT CTT GTG GTG AGC ACA GAG AAC ATC ACT CAA AAC   767
2212   Lys Asn Thr Tyr Ala Leu Val Val Ser Thr Glu Asn Ile Thr Gln Asn
2213   240                      245                      250                      255
2214
2215
2216   ATT TAT ACC GGT GAT AAC AGA TCC ATG ATG GTT TCG AAT TGC TTG TTC   815
2217   Ile Tyr Thr Gly Asp Asn Arg Ser Met Met Val Ser Asn Cys Leu Phe
2218           260                      265                      270
2219
2220
2221   CGT GTC GGT GGG GCA GCG ATT CTG CTC TCC AAC AAG CCG GGG GAT CGA   863
2222   Arg Val Gly Gly Ala Ala Ile Leu Leu Ser Asn Lys Pro Gly Asp Arg
2223           275                      280                      285
2224
2225
2226   AGA CGG TCC AAG TAC AAG CTA GCT CAC ACG GTT CGA ACG CAT ACC GGA   911
2227   Arg Arg Ser Lys Tyr Lys Leu Ala His Thr Val Arg Thr His Thr Gly
2228           290                      295                      300
2229
2230
--> 2231   GCT GAC GAC AAG TCT TTT GGA TGT GTG CGG CAA GAA GAA GAT GAT AGC
2232   Ala Asp Asp Lys Ser Phe Gly Cys Val Arg Gln Glu Glu Asp Asp Ser
2233           305                      310                      315
2234
2235
--> 2236   GGT AAA ACC GGA GTT AGT TTG TCA AAA GAC ATA ACC GTT GTT GCC GGG   1007
2237   Gly Lys Thr Gly Val Ser Leu Ser Lys Asp Ile Thr Val Val Ala Gly
2238   320                      325                      330                      335
2239
2240
2241
2242   ATA ACG GTT CAG AAA AAC ATA ACA ACA TTG GGT CCG TTG GTT CTT CCT   1055
2243   Ile Thr Val Gln Lys Asn Ile Thr Thr Leu Gly Pro Leu Val Leu Pro
2244           340                      345                      350
2245
2246
2247   CTG AGC GAA AAA ATC CTT TTT GTC GTT ACA TTC GTA GCC AAG AAA CTA   1103
2248   Leu Ser Glu Lys Ile Leu Phe Val Val Thr Phe Val Ala Lys Lys Leu
2249           355                      360                      365
2250
2251

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*edit*



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*OK*

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/657,749

DATE: 07/26/96  
TIME: 11:15:23

INPUT SET: S11781.raw

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2252   TTA AAA GAT AAG ATC AAA CAC TAT TAC GTG CCG GAT TTC AAA CTT GCA   1151
2253   Leu Lys Asp Lys Ile Lys His Tyr Tyr Val Pro Asp Phe Lys Leu Ala
2254           370                      375                      380
2255
2256
2257   GTA GAT CAT TTC TGT ATT CAT GCG GGA GGT AGA GCC GTG ATA GAT GTG   1199
2258   Val Asp His Phe Cys Ile His Ala Gly Gly Arg Ala Val Ile Asp Val
2259           385                      390                      395
2260
2261
2262   TTA GAG AAG AAC TTA GGG CTA TCG CCG ATA GAT GTG GAG GCA TCA AGA   1247
2263   Leu Glu Lys Asn Leu Gly Leu Ser Pro Ile Asp Val Glu Ala Ser Arg
2264   400                      405                      410                      415
2265
2266
2267   TCA ACA TTA CAT AGA TTT GGG AAT ACA TCG TCT AGT TCA ATT TGG TAT   1295
2268   Ser Thr Leu His Arg Phe Gly Asn Thr Ser Ser Ser Ser Ile Trp Tyr
2269           420                      425                      430
2270
2271
2272   GAA TTA GCA TAC ATA GAG CCA AAA GGA AGG ATG AAG AAA GGT AAT AAA   1343
2273   Glu Leu Ala Tyr Ile Glu Pro Lys Gly Arg Met Lys Lys Gly Asn Lys
2274           435                      440                      445
2275
2276
2277   GCT TGC CAA ATA GCT GGT GGG TCA GGT TTT AAG TGT AAT AGT GCG GTT   1391
2278   Ala Cys Gln Ile Ala Gly Gly Ser Gly Phe Lys Cys Asn Ser Ala Val
2279           450                      455                      460
2280
2281
2282   TGG GTC GCT TTA CGC AAT GTC GAG GCT TCA GCT AAT AGT CCT TGG GAA   1439
2283   Trp Val Ala Leu Arg Asn Val Glu Ala Ser Ala Asn Ser Pro Trp Glu
2284   465                      470                      475
2285
2286
2287   CAT TGC ATT CAC AAA TAT CCG GTT CAA ATG TAT TCT GGT TCA TCA AAG   1487
2288   His Cys Ile His Lys Tyr Pro Val Gln Met Tyr Ser Gly Ser Ser Lys
2289   480                      485                      490                      495
2290
2291
2292   TCA GAG ACT CCT GTC CAA AAC GGT CGG TCC TAATTTATGT ATCTCAAATG   1537
2293   Ser Glu Thr Pro Val Gln Asn Gly Arg Ser
2294           500
2295
2296
2297
2298   ATGTTGTCCA CTTTCTCTTT TTTTTTTTCT TTTTITAGTT ATAATTTAAT GGTTACGATG 1597
2299
2300
2301   TTTTGTCTAG GTCGTTATAA ATAAAGAATA CATGGGTGTT ACTAGTATAA AAAAAAAAAA 1657
2302
2303
2304   AAAAAAA 1664

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INPUT SET: S11781.raw

2305  
2306

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2627 (2) INFORMATION FOR SEQ ID NO: 30:

2628

2629 (i) SEQUENCE CHARACTERISTICS:

2630

2631 (A) LENGTH: 42 base pairs

2632

2633 (B) TYPE: nucleic acid

2634

2635 (C) STRANDEDNESS: single

2636

2637 (D) TOPOLOGY: linear

2638

2639 (ii) MOLECULE TYPE: other

2640

--> 2641 (A) ~~synthetic oligonucleotide~~

2642

2643

2644 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

2645

2646 CAUCAUCAUC AUGTCGACAA AATGACGTCC ATTAACGTAA AG

42

2647

2648

2649

---

2650 (2) INFORMATION FOR SEQ ID NO: 31:

2651

2652 (i) SEQUENCE CHARACTERISTICS:

2653

2654 (A) LENGTH: 50 base pairs

2655

2656 (B) TYPE: nucleic acid

2657

2658 (C) STRANDEDNESS: single

2659

2660 (D) TOPOLOGY: linear

2661

2662 (ii) MOLECULE TYPE: other

2663

--> 2664 (A) ~~synthetic oligonucleotide~~

2665

2666

2667 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 31 :

2668

2669 CUACUACUAC UAGTCGACGG ATCCTATTTG GAAGCTTTGA CATTGTTTAG

50

2670

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2673

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2696 (2) INFORMATION FOR SEQ ID NO: 33:

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/657,749DATE: 07/26/96  
TIME: 11:15:30

INPUT SET: S11781.raw

2697  
2698 (i) SEQUENCE CHARACTERISTICS:  
2699  
2700 (A) LENGTH: 41 base pairs  
2701  
2702 (B) TYPE: nucleic acid  
2703  
2704 (C) STRANDEDNESS:single  
2705  
2706 (D) TOPOLOGY: linear  
2707  
2708 (ii) MOLECULE TYPE: other  
2709  
--> 2710 (A)synthetic oligonucleotide  
2711  
2712 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 33 :  
2713  
2714 CAUCAUCAUC AUGAATTCAA GCTTAARYTN BKNTAYCAYT A 41  
2715  
2716  
2717

---

2738 (2) INFORMATION FOR SEQ ID NO: 35:  
2739  
2740 (i) SEQUENCE CHARACTERISTICS:  
2741  
2742 (A) LENGTH: 41 base pairs  
2743  
2744 (B) TYPE: nucleic acid  
2745  
2746 (C) STRANDEDNESS:single  
2747  
2748 (D) TOPOLOGY: linear  
2749  
2750 (ii) MOLECULE TYPE: other  
2751  
--> 2752 (A)synthetic oligonucleotide  
2753  
2754 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 35 :  
2755  
2756 CAUCAUCAUC AUGAATTCAA GCTTAAYYTN GGNGGNATGG G 41  
2757  
2758  
2759

---

2760 (2) INFORMATION FOR SEQ ID NO: 36:  
2761  
2762 (i) SEQUENCE CHARACTERISTICS:  
2763  
2764 (A) LENGTH: 40 base pairs  
2765  
2766 (B) TYPE: nucleic acid  
2767

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/657,749DATE: 07/26/96  
TIME: 11:15:34

INPUT SET: S11781.raw

2768 (C) STRANDEDNESS:single  
2769  
2770 (D) TOPOLOGY: linear  
2771  
2772 (ii) MOLECULE TYPE: other  
2773  
--> 2774 (A)synthetic oligonucleotide  
2775  
2776 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 36 :  
2777  
2778 CUACUACUAC UAGGATCCGT CGACCCATNC CNCCNARRTT 40  
2779  
2780

---

2800 (2) INFORMATION FOR SEQ ID NO: 38:  
2801  
2802 (i) SEQUENCE CHARACTERISTICS:  
2803  
2804 (A) LENGTH: 41 base pairs  
2805  
2806 (B) TYPE: nucleic acid  
2807  
2808 (C) STRANDEDNESS:single  
2809  
2810 (D) TOPOLOGY: linear  
2811  
2812 (ii) MOLECULE TYPE: other  
2813  
--> 2814 (A)synthetic oligonucleotide  
2815  
2816 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 38 :  
2817  
2818 CUACUACUAC UAGGATCCGT CGACSWRTTR CAYTTAANC C 41  
2819  
2820  
2821

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2822 (2) INFORMATION FOR SEQ ID NO: 39:  
2823  
2824 (i) SEQUENCE CHARACTERISTICS:  
2825  
2826 (A) LENGTH: 29 base pairs  
2827  
2828 (B) TYPE: nucleic acid  
2829  
2830 (C) STRANDEDNESS:single  
2831  
2832 (D) TOPOLOGY: linear  
2833  
2834 (ii) MOLECULE TYPE: other  
2835  
--> 2836 (A)synthetic oligonucleotide  
2837

08/657,749

## Notice of Availability

### Applicant Aid for Biotechnology Computer Readable Form (CRF) Sequence Listings Submissions

The Patent and Trademark Office (PTO) has developed a computer program, called Checker, that will aid applicants in identifying and correcting errors prior to making submissions for compliance with the Requirements for Patent Applications Containing Nucleotide Sequence and/or Amino Acid Sequence Disclosures (sequence rules: 37 CFR 1.821 through 1.825). (Final rules were published in the *Federal Register* (55 FR 18230) on May 1, 1990, and in the *PTO Official Gazette* (1114 Off.Gaz.PatOffice 29) on May 15, 1990.)

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Phone number: 703-305-8950  
Cost: Free-of-charge
- 2) Dial-up access through the Internet. FTP site: ftp.uspto.gov  
Login as "anonymous". Software is in directory /pub/checker  
Cost: Free-of-charge
- 3) For diskette copies, telephone requests to 703-306-2600.  
Cost: \$25.00

For Further Information Contact: Meredith Beckhardt at 703-308-4212.

**RAW SEQUENCE LISTING**  
PATENT APPLICATION *US/08/657,749*DATE: 07/26/96  
TIME: 11:15:37*INPUT SET: S11781.raw*

2838 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 39 :  
2839  
2840 CUACUACUAC UASWRTTRCA YTTRAANCC  
2841

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29